

Project Plan

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Introduction

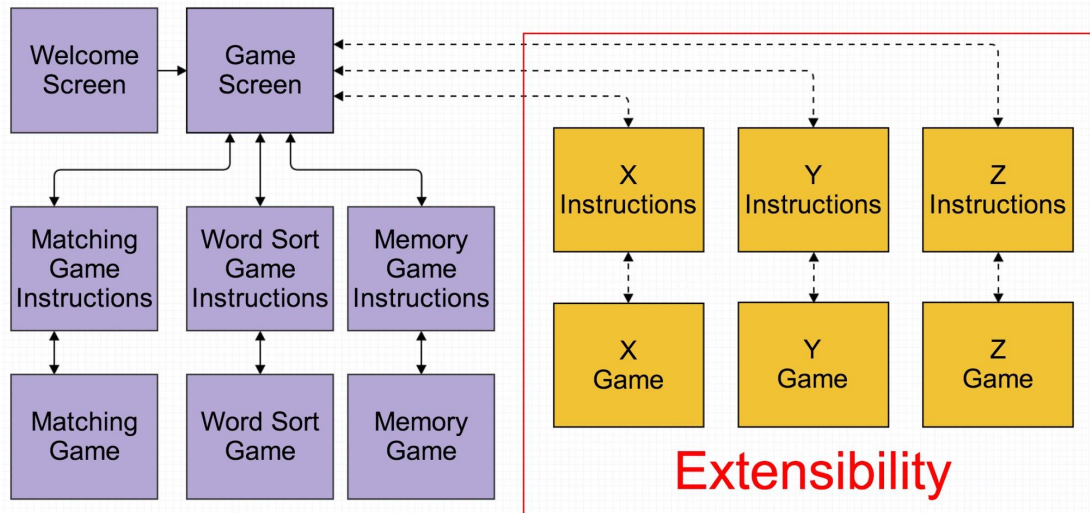
The Project Plan defines the following:

- Problem/need statement
- System block diagram
- Operating environment
- User interface description
- Functional requirements
- Non-functional requirements
- Deliverables
- Work plan
 - Budget
 - Project schedule
 - Risks
 - Work breakdown structure

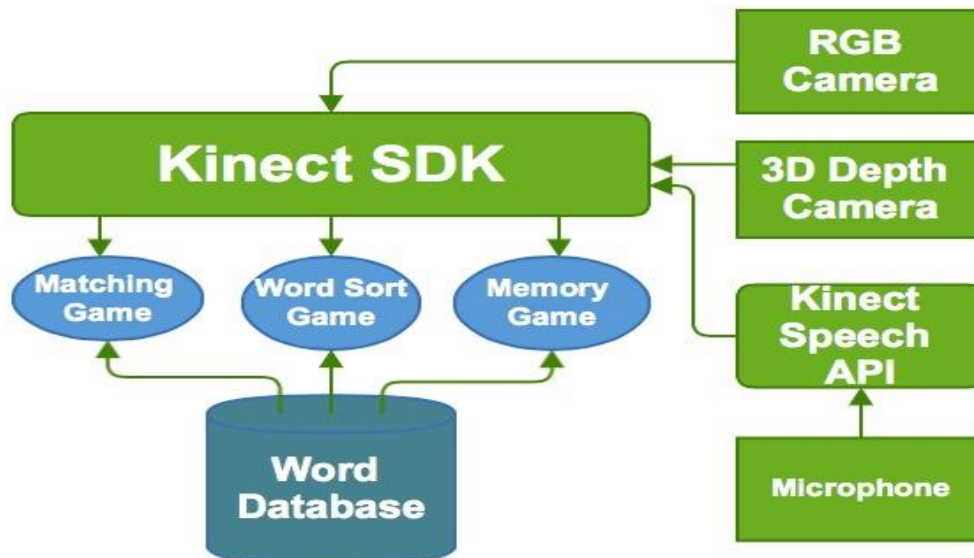
Problem/need statement

Remember Hooked on Phonics®? It was an innovative solution to teach children English. The problem with it was that there was no feedback for the child. Learning is most effective when feedback can help correct us when we're wrong. With our project, Words with Kinect, children will be able to fully interact with the software by their voices and gestures. The software will be able to tell them if they are pronouncing words, vowels, sentences, correctly. The software will also help them learn to write by allowing them to write/draw letters with their hands. Words with Kinect is effective because it allows children to learn through seeing, hearing, and physically writing with their hands. Reading is an essential skill for everyone to have. The earlier that children can learn how to read, the more effective they can learn other skills at school. We believe that Words with Kinect can be an effective, yet entertaining solution for children to learn English.

Screen Flow / Architecture



Screen Flow



Architecture

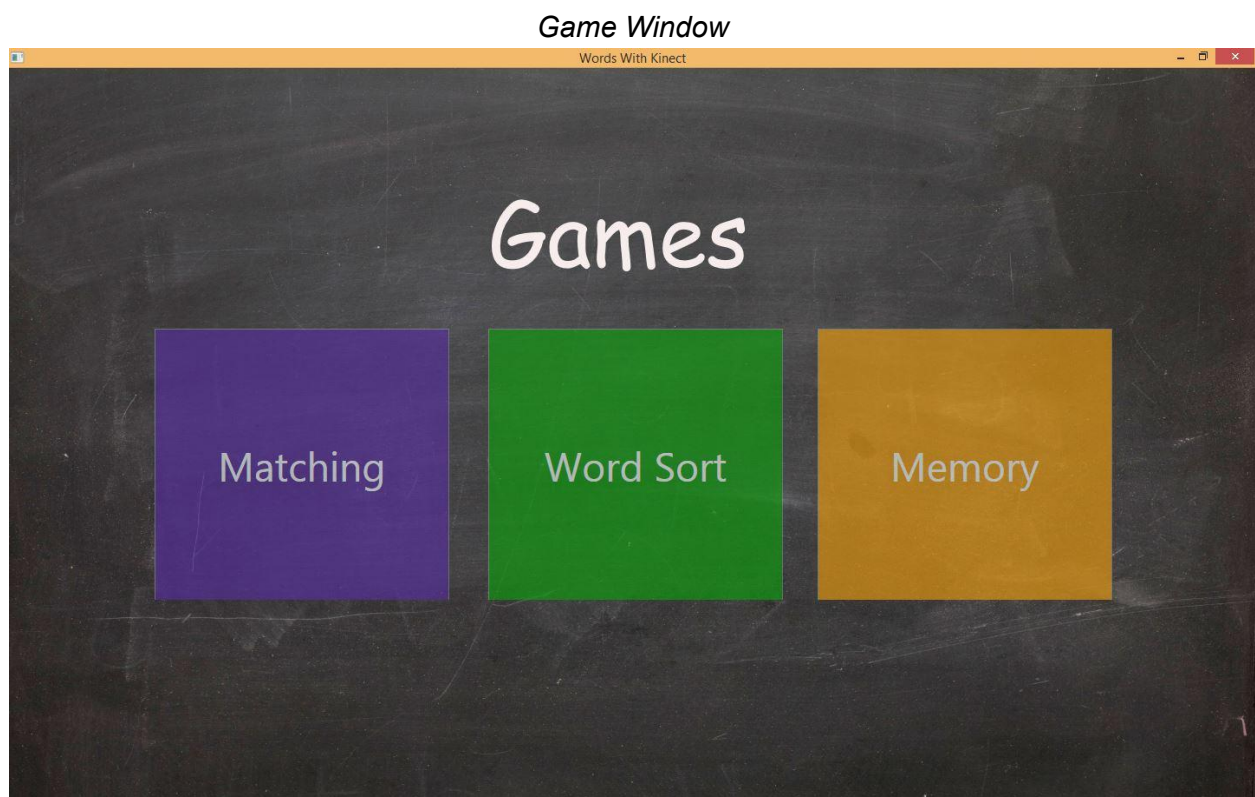
Operating environment

Operating environments: For our software environment we are using Windows OS and the Kinect for Windows Runtime Environment. In terms of physical operating environment variables we expect that there will need to be a decent amount of room so that the kinect can see the full body to accurately recognize gestures. Also there are many different resolution displays that a user of our software could be using so we need to have an adaptable GUI that will work whether they are using a laptop display or a 1080p TV. It would of course be optimal to use as big a display as possible in order to be able to see the content on screen at the distance required.

Home - The software can simply be run on any personal computing device with Windows OS. There has to be an area that can be cleared out for play.

School - A dedicated area in the computer lab or multiple for more than one student at a time.

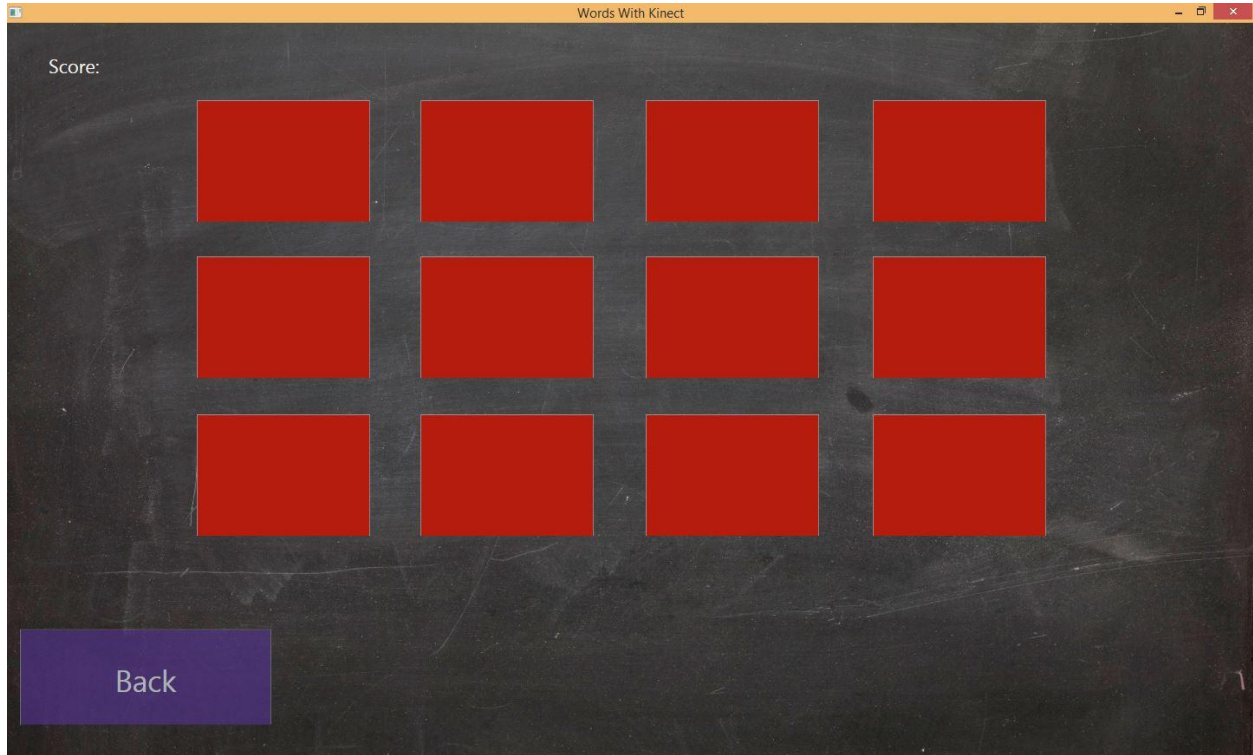
User interface description



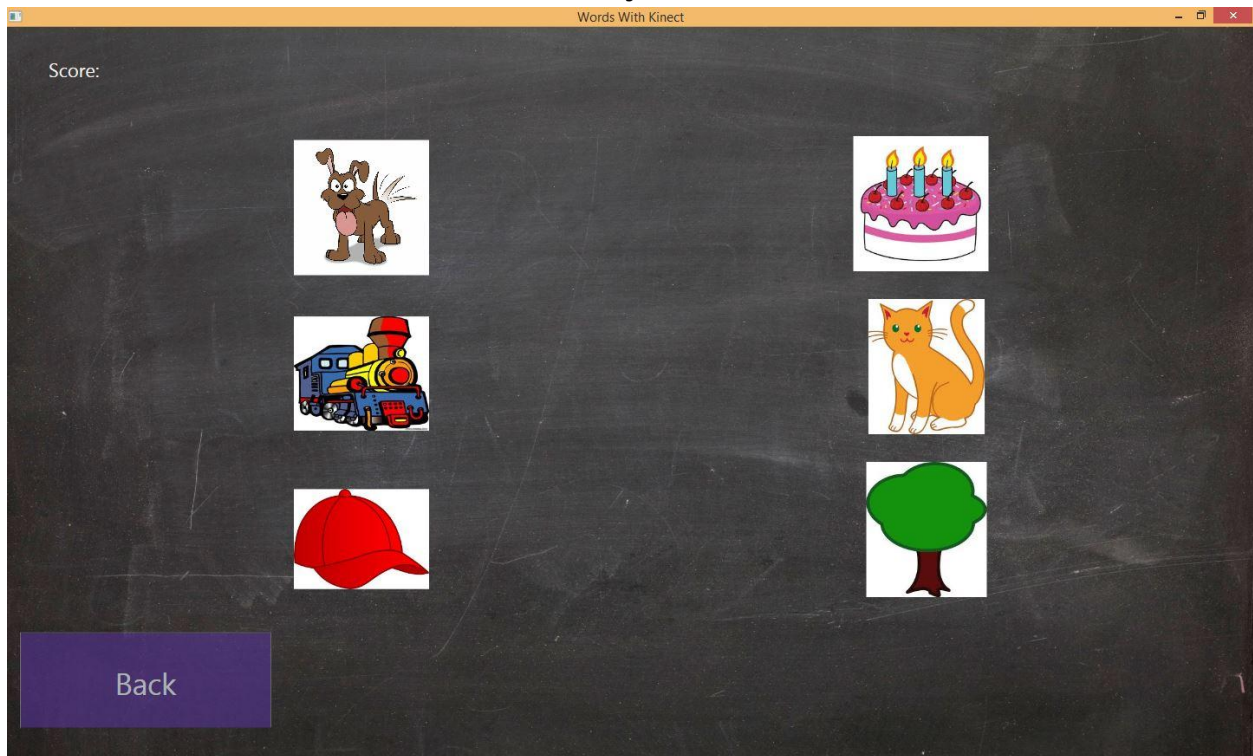
This is the main screen of the application. From here the user will have access to all three games as well as any other games that will be added. These buttons will bring the user to an instruction screen for the game that they selected.

Games

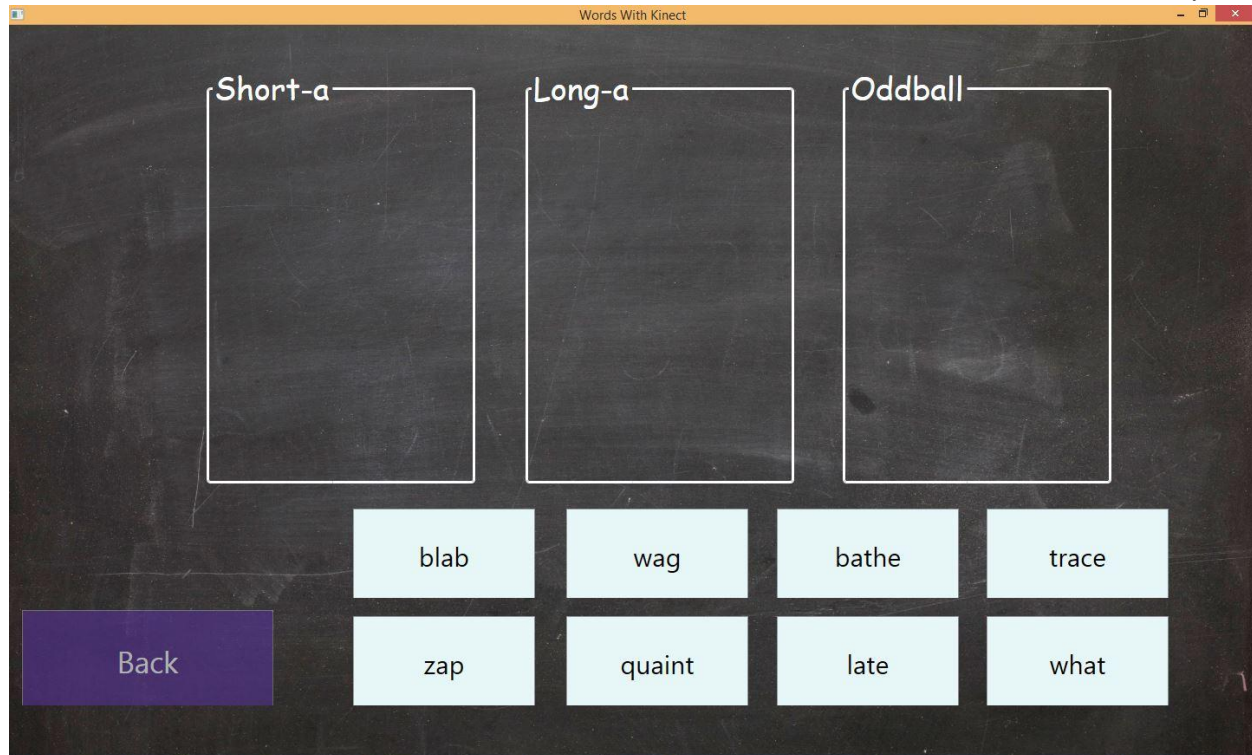
Below are screenshots of our three main games. These games test the children's ability to know and recognize the "long-a" and "short-a" sounds. The design of the games are based on the research of Dr. Donald Bear.



Memory Game



Matching Game



Column Sort

Functional requirements

- Accurate hand gesture recognition (enough precision to write single letters)
 - Grabbing
 - Tracking drawing direction
- Accurate voice recognition
 - diction assessment
 - checking for correct word or letter
- Randomization and variety of exercises to enhance the learning experience
- Needs to provide helpful feedback to improve skills

Non-functional requirements

- An age appropriate child needs to interface with out system
 - They must be a proper height to be picked up by the kinect camera
- It must be able to hold the attention of a young child
 - Must be entertaining
 - Engaging
 - Gives feedback
- There must be enough space in the room so that the kinect is able to pick up the image of the child

- The price should be no more than the cost of the kinect and either a TV or computer monitor
- The system must be easy to use for a young child and have a simple interface
- The program will run on windows operating system. Specifically windows 7

Market Analysis

Currently, there are no Kinect education applications similar to Words with Kinect. Through consultation of our expert, Dr. Bear, we see a need for this application and other english learning applications.

Deliverables

- Educational games:
 - This project will have games that will educate young child. It will help teach them how to read, speak, and spell. Because they are games we hope to have them be entertaining so that the children will want to come back to them.
- Simple user interface:
 - the interface of this system will be simple enough that a young child should be able to operate it. Therefore most of the instructions will be in the form of pictures or short words.
- Age appropriate material:
 - After consulting with an expert in the field we will have games that pertain to a particular age group. We should be able to easily expand our project to fit a variety of age groups.
- Expandability:
 - This application will be designed in a manner that makes it easy to add additional games and features to the application. Documentation will be provided on how this should be accomplished.
- This project will be delivered in the form of a piece of software (most likely an .exe) that the user will be able to install on his/her computer.

Work Plan

Budget

- Kinect
 - These were already purchased by the department should be easy to obtain
- TV/Monitor
 - There should be no problems obtaining a computer monitor in which to run our program
- Visual Studio
 - Provided by our MSDN license with microsoft
- Windows 7 or windows 8
 - This software is also provided by our MSDN license

Project Schedule

Week	Tasks	Deliverables
September 2	Meet with advisor, learn about project and competition	
September 9	Create Microsoft Accounts	
September 16	Brainstorm project ideas, talk about feasibility	
September 23	Choose project and talk to advisor about next steps	Hw 1 - Standards
September 30	Find an expert in childhood education, Download software and set up development environments	
October 7	Connect with experts and set up weekly/bi-weekly meetings	Project Plan v1

October 14	Market Research	
October 21	Market Research, meet with expert and refine requirements, create Design Document	
October 28	Market Research, refine requirements, Create Design Document	Design Document v1
November 4	Meet with Microsoft Lead, Refine Project Plan	
November 11	Refine Project Plan	Project Plan v2
November 18	Create Presentation	
December 2	Refine Design Document	Final Project Plan and Design Document
December 9		Presentation

Risks

- Reliable voice recognition
- Reliable gesture recognition
- Software ineffective in teaching kids due to poor market research
- Having to accurately decode their voice and being able to tell if a child is pronouncing a word correctly

Work breakdown structure

- Taylor - Keeping any documents we've worked on. Making sure assignments are turned in.
- Mario - Scheduling meetings and due dates. Establishing relationships with Education experts.

- Kevin - Kevin is in charge of making contact with important people associated to the project. As a team leader he removes obstacles that ensure the project goes smoothly
- Rui- Take care of website and make sure that our project has a good public face.